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ABSTRACT

Interest in "open" education has been stimulated by reforms going on in the British primary school. It is also stimulated by a belief that British schools must become more responsive to the people they are intended to serve and less controlled by institutional routines and technological requirements. A two-dimensional scheme is proposed for conceptualizing various kinds of educational environments. The scheme requires that two sets of questions be asked. The first set deals with the child as learner. To what extent does he affect what happens to him? The second set relates to the teacher's contributions in influencing the nature and direction of learning. The point is made that in the current enthusiasm for open education, centrality of the teacher's role is often overlooked. Thus, one critical focus for the evaluation of open education is a focus on teachers. An initial approach to such evaluation might be an interview study of teachers who are working in open settings. Topics discussed would be working environment and the process of open teaching itself. The research focus on children included attempts to look at communication, perception of school, intuition, writing, and quantitative concepts. (CK)

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OPEN EDUCATION: RESEARCH AND ASSESSMENT STRATEGIES[1]

Edward A. Chittenden and Anne M. Bussis

Introduction

Although the term "open education" appears in the title of this paper, let me begin with a general disclaimer about labels. The primary and most legitimate function of labels is to identify brand products or manufacturing trademarks. When it comes to complex issues of living, however, labels are potentially dangerous. In particular, the label "open education" seems hazardous for at least three reasons. First, the term refers both to a philosophy and theory of human learning; but it is all too easy to buy the label without buying or understanding the underlying premises. Secondly, a label sounds as if it implies a prescription (a patented process or recipe if you will), when in fact "open education" is not a prescriptive approach. Finally, a new or suddenly popularized label connotes for many people a brand new idea; and many of the ideas basic to open education have been around for several years under various guises. With these caveats in mind, then, let me proceed to use the term open education as a convenient shorthand.

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The Conceptual Problem

Interest in what has come to be called "open" education has been growing at such a rapid rate during the past two or three years that it now constitutes a movement of significant proportions. In part, this trend has been stimulated by reforms going on in the British primary school. To a greater extent, however, it probably stems from a growing conviction in this country that our schools must somehow become more humanized--more responsive to the people they are intended to serve and less controlled by institutional routines and technological requirements.

Whatever the motivating forces behind the movement, the problem of conceptualizing an open philosophy in ways which permit meaningful comparisons between educational programs is complex. There is a widely held theoretical scheme, for example, which would compare classrooms along the dimension of "child-centered" to "adult-centered." At one end of this contimuum is a classroom completely controlled by the teacher and organized around formal curricular requirements; and at the other extreme, a classroom in which the children presumably set the entire course of instruction--with a wide variety of positions in between. An important finding which emerged from our study of the open approach sponsored by Education Development Center (one of the educational models in the goverment's Follow Through program) was that it did not fit comfortably at <u>any</u> point on such a scale. It was simultaneously child-centered and adult-centered. A major assumption of an open philosophy is that the organization of experience and growth of knowledge can best take place when the child himself is located very much at the center of the learning process and acquires responsibility for learning. On the other hand, this does not imply that the teacher assumes a role that is merely understanding and supportive. While teachers certainly should strive to understand and support children, they are also perceived as active thinking adults whose job it is to extend and intergrate children's learning in all spheres.

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It therefore became apparent that "child-centeredness" and "adult-centeredness" might well be viewed as independent dimensions, rather than as opposite ends of a single continuum. Thus, we proposed the two-dimensional space represented in Figure 1, as a more useful scheme for conceptualizing various kinds of educational environments. The scheme requires that two sets of questions be asked. The first set deals with the child as learner. To what extent does he affect what happens to him? The second set relates to the teacher's contributions in influencing the nature and direction of learning.

To illustrate this scheme a bit more, in the upper-right-hand quadrant (with high contribution by both teacher and child) would be classrooms that have developed considerably along the lines advocated by an open philosophy. In the upper left-hand quadrant are settings in which the adult plays a supportive but essentially nondirective role, while the children have great freedom. In the lower right-hand corner are rooms in which students have little to say about what they will do, although the teacher is an active professional who might examine new curriculm materials with a critical eye and give a great deal of thought to the nature of instruction. Many American classrooms undoubtedly fall here, but it is perhaps best characterized by what is the common image of traditional British teaching. Finally, in the lower left quadrant might be located examples of what Silberman has called "institutional mindlessness." Here, the children carry out lessons assigned by the teacher who in turn is carrying out a program that was devised by someone else. Routine teaching and low personal involvement usually characterize such settings.

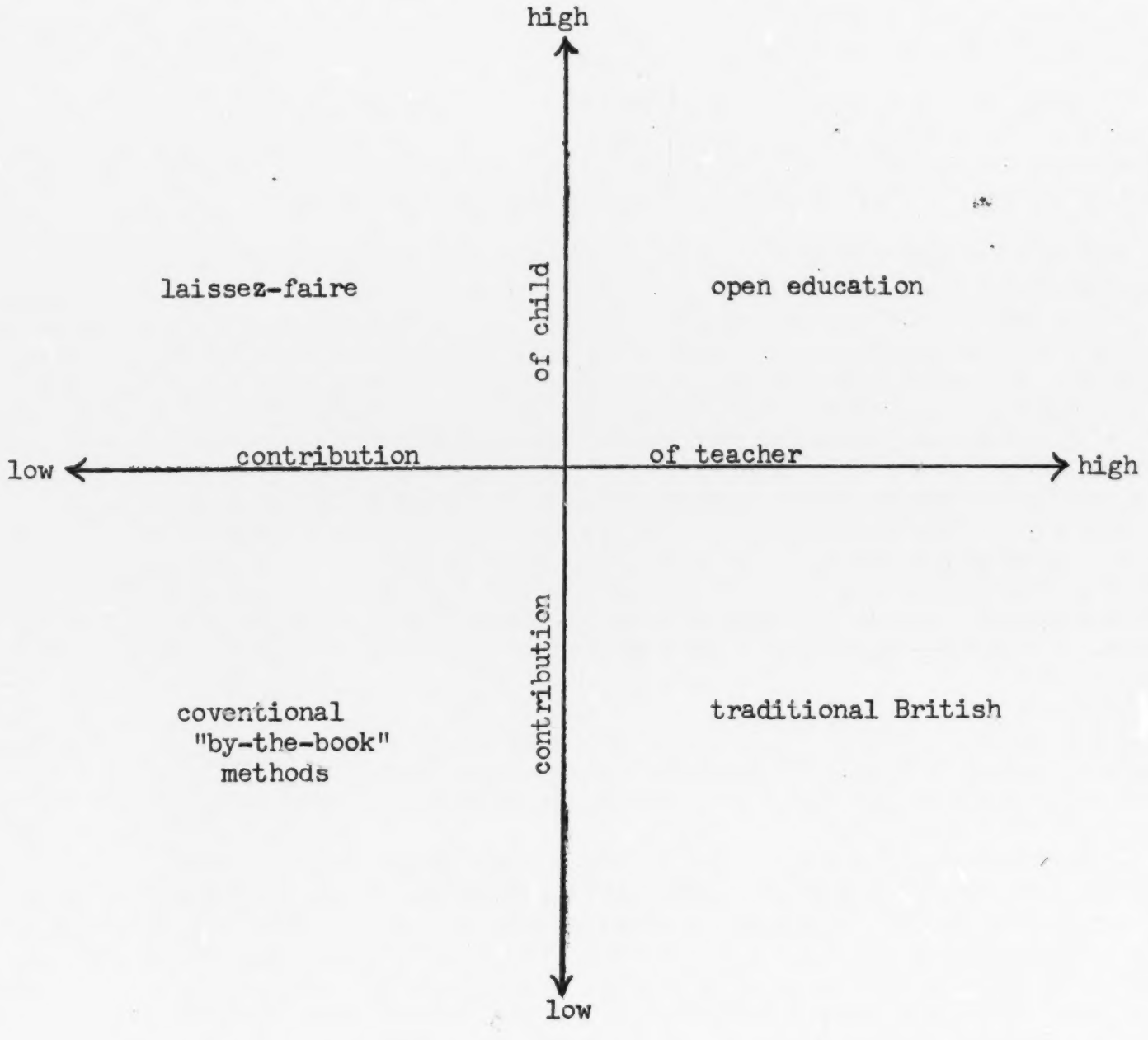
While this is a scheme--and cannot be taken too literally--it does highlight a number of issues that are important for evaluation--particularly when you are looking for differences in educational programs.

It becomes apparent, for example, that the question of teaching effectiveness cannot be cast simply as a question of "program implementation" in the usual sense. Understandably, the interested principal, parent and teacher search for a syllabus or "how-to-do-it" manual, when in fact there is not "it" that can be separated from persons who wish to "do it." By definition, open education cannot be packaged into a teacher-proof format and then implemented. The reason for placing major emphasis on teaching, rather than curriculum design, has been stated by the British educator, John Blackie (1969):

> The one essential point in the whole education system is the point of contact between teacher and child. It is to make this contact as fruitful as possible that everything else -- authority, administration, curriculum -- exist. If the system fails to work at this point of contact, it fails everywhere (pp. 4-5).

Figure 1[1]

Double Classification Scheme Based on Extent to which (1) the Individual Teacher and (2) the Individual Child is an Active Contributor to Decisions Regarding the Content and Process of Learning.



[1]adapted from Bussis & Chittenden, 1970

Research Focus on Teachers

In the current enthusiasm for open education, however, centrality of the teacher's role is often overlooked. Some schools, for example, appear to be introducing open education through administrative fiat--trying to create instantly the kinds of environments that require time to develop. In other places, children of varying ages are mixed and walls are knocked down, but not much thought is given to why these actions are undertaken or whether anthing else should be changed. Finally, there are some educators who perceive open education as "laissez-faire" education, in which adult direction is thought to be relatively unimportant or even harmful. While such experimental efforts may represent first steps in a better direction, they also can lead to disillusionment and premature rejection of that which is sound in the movement toward "opening up" the schools. Thus, in our minds, one critical focus for the evaluation of open education is a focus on teachers.

An initial approach to such evaluation might be an interview study of teachers who are working in open settings. Although the research literature on teaching does not abound with studies in which researchers have talked with teachers, this seems to us a rather sensible, if simple-minded, strategy.

One major topic which should be discussed with teachers is their working environment--what they perceive as significant features of that environment, major facilitating and inhibiting influences, ideas for improvement. Our reason for concern with the working enviroment rests on the assumption that a basic prerequisite of "good" open education is an environment which is supportive of staff experimentation. While any minimal or "core" set of supportive factors may well vary for different schools or different locations, it is extremely important to identify these influences more clearly. As Herb Mack and Ann Cook (1971) have pointed out in a discussion of English primary and infant school teachers: "The skill required to teach effectively in this way often leads observers to suggest that only exceptional teachers can survive. This is not so. The great majority involved in the integrated day are not exceptional teachers. They are, rather, a mixed group--supported by a practical and philosophical framework, and themselves encouraged to develop as people. If they are dramatically different from their more formal colleagues, it is not in training or intellectual gifts, but rather in the way they order their priorities . . . In short, the total school environment makes possible the maximum use of the teacher's abilities as well as those of the child. In this way, quite ordinary individuals become what appear to be extraordinary teachers when compared to those functioning in more traditional settings"(p.11).

A second topic which deserves in-depth discussion with teachers is the process of open teaching itself. Tentatively at least, we have identified what appear to be some basic requirements of this approach--such things as building on childrens interest and utilizing children's resources in teaching; utilizing materials and physical setting as resource; evaluating the learning that is occuring; experimenting with new approaches when this seems called for. Experience to date leads us to believe that these are the type of requirements which may present problems to the teacher who departs from conventicnal methods and ventures into more open styles. The nature and intensity of such problems must be illuminated, however, if open education is to proceed as a reasoned alternative and not become simply a frustrated, and in its own way mindless, search for better ways.

In addition to identifying teaching requirements, we have also tried to articulate various criteria which represent directions of change toward open education. These criteria are derived from our previous analysis (the "passive--active" or "low to high" teacher dimension in figure 1), but they reflect a refinement of that initial schema. Given teacher perceptions and opinions on a number of issues relating to open teaching, these criteria might then be used to appraise where a teacher stands in movement toward that upper right-hand quadrant. The purpose of such an assessment is not to make generalized "good/bad" judgments about teachers, but to yield a profile of present status with respect to several dimensions of growth. (And certainly, it is not expected that teachers would progress at an equal rate along all fronts.) The characteristics of teachers with similar profiles could then be analyzed and linked to their perceptions of the working environment, as a way of clarifying the requirements of change toward more open teaching. Again, the intent is not to categorize teachers, but to clarify issues.

In the time available, it would be impossible to describe such a study in its entirety or to discuss the technical aspects of design and methodology. What I would like to do is mention a very general point about methodology. It should first be noted that an intensive interview (of type we are developing) has been most widely used as a research instrument in studies of child-rearing practices of parents. In that connection, the most serious problem of the interview is one of validity--the questionable leap in inference that what people say they do is what they actually do. The strength of the interview lies in its ability to elicit personal opinions, knowledge, perceptions, and attitudes which may then be legitimately assessed as more or less differentiated, relevant, salient, or whatever. The key issue for this discussion is that our interpretative framework does not rely heavily on assumptions about the actual occurrence of specific instances of behavior. Rather, our framework depends mainly on the assumption that a teacher's perception of the environment and her characteristic beliefs about children and learning have pervasive effects on her behavior--which, in turn, critically influence the learning environment she creates for children and herself. In other words, we would view knowledge and belief systems as important intervening processes between the philosophy a teacher may espouse and what she actually does.

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This is not to deny the importance of studying behavior in its own rignt with appropriate observational techniques. A major problem with such techniques, however, has been one of finding a high degree of correspondence between the priorities of the observation schedule and the priorities of the educator. Regardless of what a learning environment may look like to and objective outside observor, I would suggest that there are quite subtle but extremely important teacher behaviors which communicate to children the <u>real</u> nature of that learning environment--which is the environment as she perceives it. It is perhaps something like the subtle distinction that can be communicated to a child between what is merely permissible and what is possible.

Viewed in another way, the interview methodology is being employed because of our conviction that observing behavior, by whatever currently available technique, does not replace understanding behavior. At least much of the data I know from studies in which teachers have been observed and rated (and the data are mountainous) remain largely uninterpretable to the very researchers who gathered it. As a matter of fact, I recently heard of a room in one university that was literally filled with classroom observation data about who interacted with whom over what and for how long. The door to that room is kept locked because nobody really knows what to make of it and it's disturbing to everyone to have around. Our position, then, is simply that at this point in time the study of knowledge

and belief systems seems a more fruitful step toward unraveling the dynamics of both the open teaching process and the teacher-changing process.

Research Focus on Children

From the outset we tried to work with a conception of the child, as learner, that seemed appropriate to the priorities of the informal programs and, equally important, seemed to us to be well grounded in psychological research and theory. We thought it important to maintain a working distinction between growth and learning in a vertical sense--and growth and learning in a horizontal sense. In other words, to think of the child's development as defined by dimensions of breadth as well as height.

Turning to Piaget's works for illustration, growth along the sequence of stages and substages can be considered as progress in a vertical sense. Each stage represents a somewhat higher, or at least somewhat more abstract level of attainment. This is indeed the aspect of Piaget's writings that seems always to attract the educator's attention first. There is, however, another facet to Piaget's works which, for us at least, is more significant for present purposes. This is the image of the child as a constructor of reality--as one who puts together all sorts of things in a variety of ways. The important dimension here is not the level or logical goodness of these constructions, but rather the extent to which the constructions testify to the child's breadth of experience and his ability to build upon it.

This aspect of learning is clearest perhaps in Piaget's earlier books. When, for example, the child tells the interviewer that "moving trees" make the wind blow--this is prized by Piaget. This is evidence of the mind at work--of the construction of reality. The child has noted the motion of trees, its correlation with wind, and has had a go at theory building. Admittedly, his theory, by some vertical standards, may be fairly primitive, but it testifies to a child who is active in the use of his experience.

Recently, following Piaget's leads, we have been looking again at children's constructions. One topic we asked about is rain. Where does it come from? How does it get in the sky, etc. Some of the children give us clear evidence of theory construction. Some, in very Piagetian fashion, use their own experience for analogy. (It rains "cuz the clouds can't hold it anymore.") Others, however, offer thinner explanations and they say something about the weatherman, or offer other vague reasons. Their answers don't display as much conviction nor evidence of previous thought and observation. You have the feeling that rain doesn't mean a great deal to them.

The point is that for this particular phenomenon--rain--some children evidence active thought and construction while others give evidence of less involvement. But the difference lies in richness of association rather than in scientific or logical goodness of their remarks--and it is this richness that is the foundation for later development. In evaluating what children derive from school experiences, we need to be sensitive to such a "horizontal" dimension of cognition.

I stressed the "horizontal" because there is some evidence (meager, but it's there) that educational programs which emphasize the importance of the child's explorations, of freely formed associations, will have their measurable and perhaps most significant impact along a horizontal dimension more than the vertical scale. [At least if verticality is measured by evidence of attainment of major development milestones.] Some of our own past work, for example, suggests that Piagetian tests when designed to assess the stage or level of thinking (with the focus on vertical progression) are not sensitive to the accomplishments of educational programs which appear to offer rich experiential possibilities. Thus, the conservation of quantity, the development of certain logical structures, probably appear neither sooner nor later in children in informal programs compared to formal ones. If however, one can look at the breadth or vigor of the response—of its meaning--then this can prove to be a clearer reflection of the experiential opportunities offered in a more open school setting.

Carini (1969) reports that children in a more informal program showed evidence of a richer network of associated meanings for the objects to be classified on classification tasks; yet the level of abstraction of their classification schemes was no higher than children in more formal programs. "Instead of 'concept formulation' and 'abstraction,' our findings would indicate that children in the school are absorbed in the object and the object properties. They are in Schactel's sense of the term, 'objectifying' experience, rather than conceptualizing it." (p. 46)

The kinds of assessment procedures we explored are quite varied. Many of them not too successful and all still in need of more work. They included attempts to look at: (a) communication; (b) perception of school; (c) intuition; (d) writing; (e) quantitative concepts. I will describe a counting task for the purpose of illustrating our approach. Consideration of counting was intended to be part of a broader attempt to understand the child's conception of number and to look for ways in which such conception could be appreciably affected by his school experience. One format of the problem was simply to give to children (to hand to them) little buildings constructed of small wooden cubes and to ask them how many cubes were in the building. Another form of the problem called for estimation of the numbers of beads in containers of various sizes.

We began trying out these procedures with third grade children in ordinary, conventional elementary schools, for the most part. Right away we found our counting procedures to be much more difficult than we had anticipated. While children regarded the problem of counting as a simple enough one, they frequently lost their way in handling the buildings. Spatially they could not keep track of what they had counted and what they had not counted. Moreover, although on paper they could show us that three times four equals twelve or four plus four equals eight, they tended not to apply these operations, even to those cube buildings where the operations seemed very clearly called for. [E.g., four yellow cubes attached to four blue cubes.] Instead of adding, the children typically enumerated.

Performance on estimation was also interesting. Adults begin the estimation problems by choosing the smallest number of beads first, examining that glass container, making an estimate, then using it as a point of reference for the next container (with more beads). The children did not relate glasses in this way. Estimations were done independently of each other. This may very well be a more

general characteristic of the stage of concrete operations and not reflect schooling. However, the influence of school may be seen in those children who were afraid to estimate--old enough to know their answers would probably be wrong--yet trained to be correct.

We also posed some straightforward problems involving the use of a 12-inch ruler. While a few children seemed to be able to use the ruler as a tool, most of them seemed to have to contend with it. They could only use it in clearly prescribed ways. For example, they could easily measure the distance between dots placed 24 inches apart (two ruler's length) but 17 inches apart caused consternation and confusion. The problem for the researcher in examining behavior on these tasks is to try to differentiate those aspects (such as the fragmentary approach to estimating) that may be more generally a characteristic of the stage of development from aspects which reflect schooling.

For example, one of our hypotheses, which needs to be tested further, is that on the counting, measurement, and estimation tasks these children were thrown by the three-dimensional quality. Their kindergartens may have been three-dimensional, but instruction in the first three grades had been largely confined to workbooks and papers and pencils--a two-dimensional world. Thus, if the test is two-dimensional (such as a goup test of paper and pencil) the children's performance looks fairly sophisticated--if three-dimensional, a different picture emerges.

Of more importance than the question of dimensionality is the examination of the child's ability to judge the requirements of the situation, to be conscious of his own capabilities--and to act accordingly. We were interested in how children would go about handling problems and the extent to which they would or would not bring their own resources into play. Our clinical impression is that most of the children in the conventional programs operated with sets of poorly formulated rules that they had only partially assimilated--and that although they went about the tasks willingly enough, their behavior was often not very sensible. Thus, they could tell you that their own height was four feet--but that the height of the table was five. They could in their workbooks say that three times four is 12--but they would enumerate the legs of three chairs in order to figure out how many legs there were altogether.

We have no clear data yet, but nevertheless are tempted to hypothesize that more informal programs--which involve the individual as a learner--are programs where children approach these problems with better sense of their own capabilities. I remember, for example, a boy in one of the more open schools. He was examining a cubical building constructed of 27 little (9x9x9) cubes--(incidentally, only about 10% of some 60 children arrived at a correct solution for this item). When I asked the boy how he figured 27, he said, "Well, I know that two nines are 18, and I know there are 9 more on the top; but don't know three nines; so I went 19 20 21 22 23 24 25 26 27" (pointing to each of the remaining cubes). Another boy in an open school in which we worked, tried out some estimations of distance and height, using his own body as point of reference. Later, after several more of my questions, he said, "Are these questions really so important?"

These abilities to sense one's own resources--to size up the situation--to take some action appropriate both to the situation and to oneself--seem to me to be an exceedingly important quality of the child's performance to assess. The mark of conpetence in any area is indeed this balance between sense of one's own capabilities and sizing up of the requirements of the situation.

Our work to date convinces us that research and evaluation efforts are misdirected when they somehow fall into the alluring trap of attempting to measure "achievement" or "cognition" over here, and "self-concept" or "creativity" over there, as if they were to be compartmentalized. It is a serious mistake because any definition of achievement which is appropriate to a modern, informal program must include the self and creative effort within that definition. We should investigate thoroughly the areas of traditional concern: language arts, mathematics, sciences--and should assess whether children's accomplishments in these areas are marked by mindless application of poorly assimilated rules or by judgement and creative effort.

Problems in counting can serve to illustrate another aspect of assessment strategy that may have general significance. If we review the development of ability to count during the years from four to nine, we could describe the period of four to seven, or so, as ages of acquisition (children learning at very different rates and for very different reasons). However, by age eight or nine, most children understand what counting is about and for simpler tasks find counting to be a relatively trivial matter. This age period we might call a period of consolidation of the skills.

The strategy we are suggesting is this: If you are primarily interested in assessing the meaning of an activity for children (some component of the horizontal) you may get a very different picture from the data, depending on whether the skills or abilities you examined are in an acquisition or a consolidation period for the age group in question. Thus, if you give counting test to kindergarteners the results correlate with IQ tests, educational background of parents, etc. Among other matters, you measure differences in the children's understanding of the problem (for some, counting is like reciting an alphabet; for others, there may be some sense of number). At third grade, however, almost all children understand the nature of the task and thus differences in their performance cannot be attributed to understanding on that level. In other words, if an assessment purpose is to look at what children can do with what they are learning--the meaning of their learning--then assessment procedures might well involve measures that all children of that age can deal with--can understand--can "pass". The data then are not whether they pass the test, but how they go about it.

Although we have not explored it as much, a parallel case could certainly be made for the assessment of progress in reading. The time to assess might be in the consolidating fourth, fifth, sixth, grades with a focus on the meaning of reading; what is it a part of. Measures should not just assess whether children can read, but whether they do read. Some kind of inventory of appraisal of reading habits would be just as important if not more important than measures of skill.

I have perhaps focused too much on test-like procedures. I would like to conclude by emphasizing that there certainly are other methods for evaluating learning that are equally valid, and in some ways superior. Observation of children, paired with some form of semi-systematic interviewing by a participant-observer, within the classroom setting, would seem to be an excellent way of finding out much more about children's learning in the open context. This type of intensive study and account of children's learning in selected schools is much needed.

Some variant of Piaget's "methode clinique" could well be used by the participant observer. With this method, the standardization comes in the formulation of what the adult researcher is looking for--he observes and interviews with a clearly and reliably defined purpose. The standardization does not come in determining the specific procedures to be used--he is free to adapt to the situation and particular child. With proper precautions such a methodology is a very good one indeed and is too much overlooked in favor of the more traditional procedures which blindly assume that standardization of stimuli guarantees the comparability of test situations--a particularly hazardous assumption when children of varying ages and background are involved and when the influence of the context of the school is the variable of prime interest.

Another approach which appears to be promising, is evaluation of the children's work: the things they actually construct, paint, write. During the past year with the help of some teachers we undertook preliminary study of the feasibility of developing various scales for looking at different qualities in children's writings. In some of the open schools, we were struck with the linguistic complexity and sense of authorship that appeared in writings in the early grades. Certainly superior to the fill-in-the-blank writings of the conventional programs.

The work sample approach has the important added advantage of bringing one's attention to what children actually do--not just to what they can do under some set of rather restricted conditions. And the child's work, after all, should come closest to revealing what school means or does not mean to him.

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